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Bureau of Labor Statistics

Office of Productivity and Technology

1996 HOURS AT WORK SURVEY

The ratio of hours at work to hours paid in nonfarm establishments declined in 1996 for the first time since 1991. The decline was largely confined to non-manufacturing industries. Based on the 1996 Hours at Work Survey (HWS) of establishments, the ratio of hours at work to hours paid and changes from the previous year (with standard errors in parentheses) are:

	1996 Ratios of hours at work to hours paid	Changes in Ratios from 1995 to 1996
Nonfarm Establishments	0.932 (.002)	-0.006 (.003)
Manufacturing(Mfg.)	0.918 (.001)	0.000 (.001)
Durable Mfg.	0.915 (.002)	0.001 (.002)
Nondurable Mfg.	0.922 (.002)	-0.001 (.003)
Nonmanufacturing	0.936 (.003)	-0.008 (.004)

The hours at work survey is used to construct ratios of hours at work to hours paid for production and nonsupervisory workers for each of the major industrial sectors of the nonagricultural economy on an annual basis. The Bureau of Labor Statistics (BLS) of the U.S. Department of Labor has been conducting this survey since 1981 for use in measuring productivity.

Background

Data on average weekly hours collected by the BLS Current Employment Statistics Program (CES) represent hours paid. Hours paid include paid leave for holidays, vacations, sick and personal or administrative leave (e.g. personal business, funeral leave, and jury duty). These forms of paid leave represent time not devoted to production. Hours at work exclude paid leave while hours paid do not. Productivity is better measured as the ratio of output to hours spent in production.

The HWS survey is used to develop *ratios for hours at work to hours paid* for 30 industries. These ratios are then used to convert measures from the CES of hours paid for nonagricultural production and nonsupervisory employees to measures of hours at work. All historical data for labor productivity are measured as the ratio of output to hours at work. The historical series are based on HWS survey results and other BLS data sources.

Results

Nonfarm establishments reported a decline of 0.6 percent in the ratio of hours at work to hours paid (the ratio was 0.938 in 1995 and 0.932 in 1996), following an almost equal increase in the preceding year (see table 1). The overall decline is due to an even larger decline in the non-manufacturing sector industries (0.8 percent) while the manufacturing sector remained unchanged (0.918). A small and insignificant drop in the HWS ratio in non-durable manufacturing offset an equaly small and insignificant increase in the HWS ratio for durable manufacturing. Despite the decline in the ratio for non-manufacturing industries, the level of the ratio for non-manufacturing industries still remained substantially higher than the level for manufacturing (0.935 vs. 0.918) (see also chart 1).

As seen in table 2, the pattern of changes in the ratio differs between manufacturing and non-manufacturing industries. Within manufacturing, twelve industries posted higher ratios while eight recorded lower ratios. The distribution of increases were evenly spread between durable and non-durable manufacturing. In non-manufacturing industries, all industries reported lower ratios except for mining and for the insurance and real estate industry. These are relatively small industries.

The ratios for seven industries changed significantly between 1995 and 1996. There were significant increases for petroleum and coal products (+.015), leather products (+.010), and insurance and real estate (+.037). There were significant decreases for tobacco manufactures (-.014), electric, gas and sanitary services (-.011), wholesale trade (-.018), and finance (-.027).

Despite a drop in the overall HWS ratio, seven industries posted their highest ratios since the survey began in 1981. These industries are stone, clay and glass, paper and allied products, chemicals, petroleum and coal products, and leather (all in manufacturing) and mining and the insurance and real estate industry (in the non-manufacturing sector). There were no record low ratios.

For most industries, the ratios of hours at work to hours paid exhibit a cyclical pattern: they increase during economic expansions and decrease during economic contractions. The tendency of the ratios to increase during expansions reflects the fact that newly hired workers typically earn less paid leave than workers with more seniority. The tendency of the ratios to decrease during contractions reflects the fact that these new workers are often the ones laid off first. Somewhat surprisingly perhaps, the data for 1996 do not appear to follow this pattern.

Because the hours at work (HWS) survey is based on a sample of establishments, ratios are subject to sampling errors. The hours at work survey usually has a response rate of about 75 percent. There was a decline in the response rate from 73 percent in 1994 to 62 percent in 1995 and a further decline to 53 percent in 1996. As a result, the variances of the estimates, particularly at the detailed industry level, were higher than in previous years. The increased variances made it slightly more difficult to determine whether the changes in the ratios were significant. In communications, for example, the ratio dropped sharply from 0.912 in 1995 to 0.887 in 1996. However, the standard error more than doubled in 1996 and so this very large change in the HWS ratio is not statistically significant.

In addition, low response rates increase the likelihood that responding establishments are not representative of the entire industry or sector. It could be that the drop in response rates might reflect some unknown factor. For example, it could be that only those establishments that can most easily comply with the survey requests are responding. Some establishments may be able to more easily respond because their records are computerized. There may be other differences between these responding and non-responding establishments and some of these differences may

relate to the amount of paid leave they offer to their employees. In such a hypothetical situation, the survey responses could be skewed and this could lead to a bias in the reported ratios.

We wish to caution users of these data about the low response rates in both 1995 and 1996. The risk of non-response bias is minimized by maintaining a high overall response rate. Because of the added variance of the 1995 and 1996 HWS surveys as well as the added risk of non-response bias, it may be preferable to average the 1995 and 1996 survey results especially if the primary focus is on the level of the ratios rather than on changes in the ratios.

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